AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) An adaptation engine for adapting coefficients of a digital filter, the adaptation engine comprising:

a coefficient adaptation circuit coupled to the digital filter, said coefficient adaptation circuit implementing a plurality of coefficient adaptation algorithms to adapt the coefficients of the digital filter; and

a controller that controls the coefficient adaptation circuit at least in part by selecting coefficients of the digital filter to adapt, and by adaptively selecting specific coefficient adaptation algorithms of said plurality of coefficient adaptation algorithms to use to adapt the selected coefficients, wherein a different coefficient adaptation algorithm is adaptively selected at least partially in response to a bit error rate (BER).

2. (Original) The adaptation engine of Claim 1, wherein the coefficient adaptation circuit is capable of concurrently applying different coefficient adaptation algorithms to different coefficients of the digital filter.

3. (Original) The adaptation engine of Claim 1, wherein the coefficient adaptation circuit comprises a plurality of single coefficient adaptation circuits that operate in parallel to permit multiple coefficients to be updated concurrently, wherein the controller separately specifies the coefficient adaptation algorithm to be applied by each single coefficient adaptation circuit such that different coefficients of the digital filter may be updated concurrently using different respective coefficient adaptation algorithms.

4. (Original) The adaptation engine of Claim 1, wherein the coefficient adaptation circuit is capable of concurrently adapting each coefficient of the digital filter using a different respective adaptation algorithm.

5. (Original) The adaptation engine of Claim 1, wherein the plurality of coefficient adaptation algorithms includes a least mean square adaptation algorithm and a recursive least squares adaptation algorithm.

6. (Original) The adaptation engine of Claim 5, wherein the plurality of coefficient adaptation algorithms further includes a constant modulus adaptation algorithm.

7. (Original) The adaptation engine of Claim 1, wherein the controller implements a plurality of different coefficient selection algorithms to select coefficients of the digital filter to adapt.

8. (Original) The adaptation engine of Claim 1, wherein the controller selects coefficients to adapt at least in part using a weighted selection algorithm in which some coefficients of the digital filter are adapted more often than others.

9. (Original) The adaptation engine of Claim 1, wherein the controller selects coefficients to adapt at least in part using a coefficient selection algorithm in which the number of coefficients of the digital filter that are adapted at a time varies over time.

10. (Original) The adaptation engine of Claim 1, wherein the controller selects coefficients to adapt at least in part using a random selection algorithm.

11. (Currently amended) The adaptation engine of Claim 1, wherein the controller adaptively selects ~~between~~ among the plurality of coefficient adaptation algorithms based at least in part by monitoring the ~~operation~~ bit error rate of the digital filter to assess an effectiveness of each such coefficient adaptation algorithm.

12. (Original) The adaptation engine of Claim 1, wherein the controller further selects ~~between~~ among the plurality of coefficient adaptation algorithms based at least in part on a current load on a processor that implements the coefficient adaptation algorithms and other algorithms associated with the digital filter.

13. (Original) The adaptation engine of Claim 1, wherein the coefficient adaptation circuit comprises a processor which executes software.

14. (Original) The adaptation engine of Claim 1, wherein the coefficient adaptation circuit is implemented within application-specific hardware.

15. (Original) The adaptation engine of Claim 1, wherein the coefficient adaptation circuit is coupled to, and adapts the coefficients of, a first digital filter that is part of a first data transmission channel, and a second digital filter that is part of a second data transmission channel, said second data transmission channel being separate from the first data transmission channel.

16. (Original) The adaptation engine of Claim 1, wherein the digital filter is a transversal filter.

17. (Currently amended) A receiver system, comprising:

a receiver that receives a transmitted signal;

an equalizer that receives the transmitted signal from the receiver and processes the transmitted signal using a digital filter, said digital filter characterized by a plurality of filter coefficients; and

an adaptation engine that adapts the plurality of filter coefficients over time using a plurality of different coefficient adaptation algorithms, wherein the adaptation engine comprises a controller that adaptively selects a smaller subset than all of said plurality of coefficients to adapt, and adaptively selects a coefficient adaptation algorithm from said plurality of adaptation algorithms to use to adapt said adaptively selected smaller subset of filter coefficients.

18. (Original) The receiver system of Claim 17, wherein the adaptation engine is capable of concurrently applying different coefficient adaptation algorithms to different coefficients of the digital filter.

19. (Original) The receiver system of Claim 17, wherein the adaptation engine is capable of concurrently adapting each coefficient of the digital filter using a different respective adaptation algorithm.

20. (Original) The receiver system of Claim 17, wherein the plurality of coefficient adaptation algorithms includes a least mean square adaptation algorithm and a recursive least squares adaptation algorithm.

21. (Original) The receiver system of Claim 20, wherein the plurality of coefficient adaptation algorithms further includes a constant modulus adaptation algorithm.

22. (Original) The receiver system of Claim 17, wherein the controller implements a plurality of different coefficient selection algorithms to select coefficients of the digital filter to adapt.

23. (Original) The receiver system of Claim 17, wherein the controller selects coefficients to adapt at least in part using a weighted selection algorithm in which some coefficients are adapted more often than others.

24. (Original) The receiver system of Claim 17, wherein the controller selects coefficients to adapt at least in part using a coefficient selection algorithm in which the number of coefficients of the digital filter that are adapted at a time varies over time.

25. (Original) The receiver system of Claim 17, wherein the controller selects coefficients to adapt at least in part using a random selection algorithm.

26. (Currently amended) The receiver system of Claim 17, wherein the controller adaptively selects between the plurality of coefficient adaptation algorithms based at least in part by monitoring an operation of the digital filter to assess an effectiveness of each such coefficient adaptation algorithm.

27. (Original) The receiver system of Claim 17, wherein the receiver system comprises a plurality of digital filters, each of which has filter coefficients that are updated by the adaptation engine.

28. (Original) The receiver system of Claim 27, wherein the plurality of digital filters comprises a first digital filter that is part of a first data transmission channel, and a second digital filter that is part of a second data transmission channel, said second data transmission channel being separate from the first data transmission channel.

29. (Original) The receiver system of Claim 17, wherein the digital filter is a transversal filter.

30. (Original) The receiver system of Claim 17, wherein the equalizer is a decision feedback equalizer.

31. (Currently amended) A method of updating filter coefficients of a digital filter, the method comprising:

filtering interference using the digital filter to compensate for the effects of a transmission channel;

adaptively selecting a first subset of the filter coefficients of the digital filter based at least in part on a current load of a processor adapting the first subset of filter coefficients;

adapting the first subset of filter coefficients using a first adaptation algorithm;

selecting a second subset of the filter coefficients of the digital filter, said second subset being different from the first subset; and

adapting the second subset of filter coefficients using a second adaptation algorithm that is different from the first adaptation algorithm;

wherein the first subset of coefficients is more dominant than the second subset of filter coefficients, and the first adaptation algorithm is more computation-intensive than the second adaptation algorithm.

32. (Canceled)

33. (Original) The method of Claim 31, wherein the first and second subsets of filter coefficients are adapted concurrently.

34. (Original) The method of Claim 31, wherein the first and second subsets of filter coefficients each consist of a single respective filter coefficient.

35. (Original) The method of Claim 31, wherein the first and second subsets of filter coefficients and the first and second adaptation algorithms are selected by a controller that monitors the operation of the digital filter.

36. (Original) The method of Claim 31, wherein the first and second subsets are different in size.

37. (Original) The method of Claim 31, wherein the digital filter is a transversal filter.

38. (Original) An adaptation engine which operates according to the method of Claim 31, the adaptation engine embodied within computer hardware.

39. (Currently amended) An adaptation engine for adapting coefficients of a digital filter, the adaptation engine comprising:

a coefficient adaptation circuit coupled to the digital filter, said coefficient adaptation circuit implementing at least one coefficient adaptation algorithm to adapt the coefficients of the digital filter; and

a controller that controls the coefficient adaptation circuit at least in part by adaptively selecting fewer than all coefficients of the digital filter to adapt, wherein the controller implements at least one coefficient selection algorithm in which different

numbers of the adaptively selected coefficients of the digital filter can be adapted during different adaptation cycles.

40. (Original) The adaptation engine of Claim 39, wherein the controller varies the size of a group of filter coefficients that are selected for concurrent adaptation based at least in part on a load level of the coefficient adaptation circuit.

41. (Original) The adaptation engine of Claim 39, wherein the controller implements a plurality of different coefficient selection algorithms.

42. (Original) The adaptation engine of Claim 39, wherein the controller selects the coefficients such that a dominant coefficient of the digital filter is adapted more frequently than other coefficients of the digital filter.

43. (Original) The adaptation engine of Claim 39, wherein the coefficient adaptation circuit implements a plurality of coefficient adaptation algorithms.

44. (Original) The adaptation engine of Claim 43, wherein the controller selects between the plurality of adaptation algorithm such that a more computation-intensive adaptation algorithm is applied to a dominant coefficient than is applied to other coefficients of the digital filter.

45. (Original) The adaptation engine of Claim 43, wherein the controller selects specific coefficient adaptation algorithms from said plurality based at least in part on performance data reflective of performance of the digital filter.

46. (Original) The adaptation engine of Claim 39, wherein the coefficient adaptation circuit comprises a processor that executes program instructions.

47. (Original) The adaptation engine of Claim 39, wherein the digital filter is a transversal filter.

48. (Original) An equalizer circuit that comprises the adaptation engine of Claim 39.

49. (New) The adaptation engine of Claim 1, wherein the controller is further configured to apply said plurality of coefficient selection algorithms, to measure a bit error rate for said plurality of coefficient selection algorithms, and to adaptively select a coefficient selection algorithm based at least partially by bit error rate.

50. (New) The receiver system of Claim 17, wherein the adaptation engine is further configured to adaptively select a size of the smaller subset and/or the coefficient selection

algorithm for the smaller subset based at least partially on a switch to a different operating frequency.

51. (New) The receiver system of Claim 17, wherein the adaptation engine is further configured to adaptively select a size of the smaller subset based at least partially on a current load of a processor performing the coefficient adaptation.

52. (New) The receiver system of Claim 51, wherein the adaptation engine is further configured to adaptively select the coefficient adaptation algorithm for the smaller subset based on the number of coefficients selected for adaptation.

53. (New) The method of Claim 31, wherein adaptively selecting the first subset is also based at least partially on a determination of a "battery low" condition.

54. (New) An adaptation engine for adapting coefficients of a digital filter, the adaptation engine comprising:

a coefficient adaptation circuit coupled to the digital filter, said coefficient adaptation circuit implementing a plurality of coefficient adaptation algorithms to adapt the coefficients of the digital filter; and

a controller that controls the coefficient adaptation circuit at least in part by selecting coefficients of the digital filter to adapt, and by adaptively selecting specific coefficient adaptation algorithms of said plurality of coefficient adaptation algorithms to use to adapt the selected coefficients, wherein a different coefficient adaptation algorithm is adaptively selected at least partially in response to status signals obtained from clock recovery unit.

55. (New) An adaptation engine for adapting coefficients of a digital filter, the adaptation engine comprising:

a coefficient adaptation circuit coupled to the digital filter, said coefficient adaptation circuit implementing a plurality of coefficient adaptation algorithms to adapt the coefficients of the digital filter; and

a controller that controls the coefficient adaptation circuit at least in part by selecting coefficients of the digital filter to adapt, and by adaptively selecting specific coefficient adaptation algorithms of said plurality of coefficient adaptation algorithms to

use to adapt the selected coefficients, wherein a different coefficient adaptation algorithm is adaptively selected at least partially in response to a status of clock recovery.